



TRIOOTHERM 3500

Epoxy thermal-insulating material

CONTENTS:

The Manual describe the surface preparation; preparation for the application; application process and equipment; storage conditions; occupational safety; fire precaution measures; environmental protection; first aid measures.

SURFACE PREPARATION:

Thermal-insulating material is applied to primed surface. The process of the surface preparation is determined by the condition of the surface of the primer surface.

The primer surface should be clean, without dirt, without dust, homogeneous and smooth before the thermal -insulating material is applied. The surface should be cleaned with pressure 35 MPa by drinking water treatment, oils and grease should be removed with a thinner in accordance with GOST 9.402 – 2004.

In case of the primer surface damage, defects, chips, it is necessary to restore it in accordance with the coating manufacturer approved methods.

Thermal-insulating material is applied to a clean dry primed surface after its preparation. The time interval between the surface preparation and the application of the thermal-insulating material is determined by the environmental conditions and the characteristics of the materials.

If the surface is exposed to precipitation, make sure it is completely dry and repeat the surface preparation procedure before applying the coating.

Avoid applying the thermal-insulating material after exceeding the primer overcoat timeframe recommended by the manufacturer of that product. If the overcoat timeframe is exceeded, to ensure the adhesion between priming coat and thermal-insulating material, roughen the surface by sweep blasting (light abrasive blast cleaning conducted at an angle of 30° to the surface and under half of the operating pressure) before applying the thermal-insulating material.

Acceptance of preparation of the primed surface is carried out with drawing up of the concealed works act.

PREPARATION FOR THE APPLICATION:

TRIOOTHERM 3500 is a two-component epoxy heat-insulating material. The material is supplied in sets with a ratio corresponding to the mixing ratio.

FORBIDDEN to use accelerated methods for heating buckets with **TRIOOTHERM 3500**, such as direct contact with any heater, blowing with heat guns or heating in a water bath. This can lead to overheating of the outer layers of **TRIOOTHERM 3500** in the bucket, which can cause undesirable changes in material properties (including a decrease in viability).

Before use, the components should be conditioned for a minimum of 24 hours at a temperature of at least plus 15 ° C and not above 25 ° C. After opening the **TRIOOTHERM 3500** kit, it is necessary to mix the substrate and the hardener by a pneumatic, electro- or other low-speed stirrer using vertical blade movements for 3 minutes, add the hardener into the container with the substrate and mix the composition thoroughly until a uniform consistency for no more than 3 minutes. The application should be started immediately after mixing the components.

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APPLICATION:

Application method: Airless spraying / Forming or casting.

Thinner: not recommended.

Diameter of the nozzle (recommended): .019" - .025"

Operating pressure (recommended): (220-350) bar.

Equipment flushing: Thinner TRIOSOLV 0003 or xylene technical (thinner 646 may be used).

When stopping spraying for more than 10 minutes, the equipment must be washed without fail.

The application of filters of an airless sprayer and a spray-painting device which have the cell size at least 60 MESH (at least 250 micrometers) is recommended. It is allowed to provide an application of the material without using filters.

Recommended application conditions:

- air temperature is above 0°C;
- relative humidity 85% maximum;
- surface temperature at least 3°C above the dew point;
- absence of direct precipitation.

IMPORTANT: The application is prohibited when the above-mentioned conditions are not met.

Before the beginning of each working shift and every 4 (four) hours the following parameters must be checked and documented in the operations log:

- environmental conditions (air temperature, relative humidity);
- dew point temperature;
- surface temperature;
- absence of moisture and oil contamination on the primer surface prepared for application of the thermal-insulating material;
- absence of dust on the primed coat prepared for application of the thermal-insulating material.

Before starting the application, pass through the paint sprayer cleaner to clean the equipment from the previously used paintwork. The cleaner depends on the type of materials used previously. The procedure for cleaning the equipment is also carried out at the end of the shift and during breaks in work more than 1 hour.

The material should be applied by airless spraying; it is allowed to apply a spatula when painting hard-to-reach places or small surfaces. When applied by airless spraying, the maximum thickness of a wet film (WFT) per pass can reach 2000 µm, which corresponds to a dry film thickness (DFT) of 2000 µm. The recommended thickness of a wet film (WFT) in one pass is 1500 µm, which corresponds to a dry film thickness (DFT) of 1500 µm.

Recommended equipment for application – spray-painting devices Wagner HC 960; Wagner HC 970; GRACO XTREME X70; GRACO XTREME X90 or equivalent.

It is not recommended to use with the painting sprayer:

- hose for supply of the material which has inner diameter less than 3/8" (9,5 mm) and length more than 15 m,
- leash for the painting sprayer.

The wet film thickness control is determined by the last notch of a coating thickness gauge that touched the film surface. Above each notch of coating thickness gauge the difference between its length and the length of the outside base notches (zero datum reference) is indicated.

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When conducting measurements, the gauge should be set perpendicular to the coated surface. After each measurement, the parts of the gauge that were in contact with the coat must be carefully wiped with a clean cloth.

The wet film thickness of the coating must be recorded in operations log / site diary.

The quality control of the finished coating is checked by following characteristics:

- appearance (no sagging, cracking, peeling, etc.) – homogeneous, matte beige-colored coating;
- thickness (the coating thickness is measured at a minimum of ten points per 1 m² for each 10 m² area of the object; the result is the arithmetic mean value of the results of all the measurements, and the standard deviation of the average $S(\bar{X})$ should not exceed 20% of the test results).

IMPORTANT: Do not apply the next coat before reaching the required thickness of thermal-insulating material.

It is recommended to use coating thickness gauges with a measuring range from 0 to 10 000 microns to measure the dry film thickness of the coating.

STORAGE CONDITIONS:

Epoxy thermal-insulating material **TRIOOTHERM 3500** should be stored in a well-ventilated dry confined space at temperatures between plus 5°C to plus 30°C in the original sealed packaging, avoiding direct exposure to UV rays.

The shelf life of **TRIOOTHERM 3500** is 24 months when stored in the specified temperature range. The product should be used within the recommended shelf life indicated by the manufacturer. The decision to use material that is over 24 months old is made by a committee.

OCCUPATIONAL SAFETY:

General rules:

Works is carried out in accordance with the requirements of GOST 12.3.002, GOST 12.3.005, GOST 12.3.016, POT R M-017.

Occupational hazards and harmful should be eliminated or reduced to acceptable levels.

When organizing and carrying out painting works, a physiologically justified work-rest schedule should be provided.

Qualification requirements:

The application of the fire protection works can be conducted only by adults who are at least 18 years old and trained:

- safety training in accordance with GOST 12.0.004, including occupational hygiene, fire and electrical safety;
- professional training.

The executive officers are held responsible for complying with the occupational and industrial safety requirements when conducting the application works, in accordance with the requirements of SNiP 12-03 and SNiP 12-04.

Workers must know about:

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- hazards, harmful occupational factors, harmful substances in the materials that affect the air in the workplace and how they can affect the human body;
- application instructions and procedures, and requirements for the workplace maintenance;
- workplace safety guidelines, fire safety, industrial health;
- personal hygiene requirements;
- requirements for using personal protective equipment (PPE);
- first aid procedures.

Safety requirements for preparing and painting surfaces:

For any work related to the application of coatings in confined spaces, the general supply-exhaust ventilation and local exhaust ventilation are a prerequisite in accordance with GOST 12.4.021. The ventilation must ensure that the content of harmful substances in the air of the workplace does not exceed the maximum allowable concentrations, in accordance with the requirements of GOST 12.1.005, GN 2.2.5.3532.

Workers engaged in degreasing the surface, preparing and applying paintwork materials should be provided with the following personal protective equipment:

- disposable or reusable protective suit for painting which has zipper runs for length of the product, elastics at wrists, ankles and at the waist, and hood;
- rubber technical gloves according to GOST 20010-93;
- safety glasses according to GOST 12.4.253-2013 (EN 166:2002), symbol 3 or similar which has similar functional purpose;
- filter respirators which have isolating front part in form of half-mask according to GOST 12.4.296-2015 equipped with combined filter, which provides the protection from gases, vapors and aerosols according to GOST 12.4.235-2012 AZRZ (brown-white), AHRZ or similar which has similar functional purpose;
- shoes made from leather which has solid toes to avoid the injury of feet in case of the fall of a heavy object; sole must be protected with the metal plate.

IMPORTANT: Working without using the PPE is forbidden!

Storage of organic thinners in the workplace is permitted in hermetically sealed containers in amounts that don't exceed two working shift doses.

When working with thinners observe the following safety requirements:

- use PPE for respiratory and eye protection;
- work with the activated ventilation system that ensures sufficient air exchange.

When preparing the surface, workers conducting abrasive blasting must wear protective suits made from dust-proof material and helmets MIOT 49 type, use respirators PRB-5, PRM-62 with forced air supply.

Requirements for handling toxic substances:

Thermal-insulating material **TRIOOTHERM 3500** is produced in accordance with TU 20.14.63-035-40141638-2017 and it is intended for thermal insulation of pipelines, technological units and equipment to prevent heat leakage and / or for protection of personnel, as well as to protect steel and concrete constructions and elements of technological systems from the cryogenic strait. Can be used as an independent thermal insulation with soundproofing properties, and as part of anticorrosive coating systems and combined systems of constructive fire protection. The operating temperature range of the resulting coating is from minus 60°C to plus 150°C.

The packaging of thermal-insulating material **TRIOOTHERM 3500** must have a label with the exact name and designation of the product that it contains. Containers must be whole and have a tight-fitting lid.

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In a case of an accidental spill, the spill area must be covered with sawdust or sand after ensuring respiratory protection. Contaminated thinners, sawdust, sand, rags, cloths must be collected in pails and removed to specially designated areas in accordance with the requirements of GOST 30772, GOST R 52107.

Eating and smoking are only allowed in designated areas.

FIRE PRECAUTION MEASURES:

Fire precaution measures during coating application works must be carried out in accordance with the technical regulations related to fire safety requirements (July 22, 2008 №123-FZ) and other regulatory documents.

The coating materials are considered to be fire-hazardous, therefore, fire precaution measures in accordance with GOST 12.1.004 and Resolution №390 "Rules of the Fire Fighting Regime in the Russian Federation" are carried out at the workplace.

IMPORTANT: Do not use water to extinguish fires.

When preparing the surface for coating application and when applying coating, it is prohibited:

- to smoke, make a fire, conduct welding within a radius of 25 m from the workplace and along the vertical line below and above the area;
- to heat the production facilities and protected objects with electrical appliances in a conventional way.

In the event of a fire, evacuate all people from the area, call to the fire service, remove coating materials from the workplace, and proceed to extinguish the fire with the available means in strict accordance with the approved plan.

ENVIRONMENTAL PROTECTION:

Coating application produces solid and liquid waste described in **Table 1**.

Table 1

Type of waste	Method of waste management
<u>Solid waste:</u> Packaging of the thermal-insulating material – Containers	The packaging can be disposed of as domestic waste. Containers can be reused for technical purposes after the product remaining on the inner walls of the container has dried.
<u>Liquid waste:</u> - Thinner / flushing liquid for cleaning the painting sprayer - Remains of the product	The waste is disposed of by the product user in accordance with GOST 30772, GOST R 52107

FIRST AID MEASURES:

General information:

In the case of a suspected poisoning, seek medical help.

After inhalation:

In the case of inhalation of the product, take the affected person to fresh air, keep them at rest and seek medical help.

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After eye contact: In the case of an eye contact with the product, flush the eyes with a lot of clean running water and seek medical help.

After skin contact: In the case of skin contact, removed contaminated clothes and thoroughly clean the area of contact with soap and water. Do not use thinners or diluents.

After swallowing: In case of swallowing, keep the affected person at rest and immediately seek medical help.

IMPORTANT: Do not induce vomiting.